

**THE UNIVERSITY OF CHICAGO**

<120> MODIFIED INOSINE 5'-MONOPHOSPHATE DEHYDROGENASE  
POLYPEPTIDES AND USES THEREOF

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<140> Not yet known
<141> 2001-05-10
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<160> 65

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<210> 1
<211> 3
<212> PRT
<213> Homo sapiens
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<211> 3
<212> PRT
<213> Homo sapiens
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<212> PRT  
<213> Homo sapiens

<400> 3  
Ser Pro Ser  
1

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<213> Homo sapiens

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Ser Ala His  
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<213> Homo sapiens

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Lys Pro Ile  
1

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<212> PRT  
<213> Homo sapiens

<400> 6  
Ile Val Asp  
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<212> PRT  
<213> Homo sapiens

<400> 7  
Ala Leu Phe  
1



<210> 13  
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<213> Homo sapiens

<400> 13  
Asn Ile Ile Pro  
1

<210> 14  
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<213> Homo sapiens

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Ser Pro Thr Gln  
1

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<400> 15  
Thr Arg Tyr Thr  
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<213> Homo sapiens

<400> 16  
Ala Gly Arg Pro  
1

<210> 17  
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<213> Homo sapiens

<400> 17

0985318-054001



Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Asp Lys  
 100 105 110

Thr Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys Tyr  
 115 120 125

Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu Asp  
 130 135 140

Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr Ile  
 145 150 155 160

Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val Thr  
 165 170 175

Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu Arg  
 180 185 190

Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
 195 200 205

Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala  
 210 215 220

Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val  
 225 230 235 240

Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met  
 245 250 255

Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe Phe  
 260 265 270

Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu Asp  
 275 280 285

Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala  
 290 295 300

Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys  
 305 310 315 320

Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His  
 325 330 335

Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala Met  
 340 345 350

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Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu Arg  
180 185 190

Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
195 200 205

Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala  
210 215 220

Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val  
225 230 235 240

Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met  
245 250 255

Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe Phe  
260 265 270

Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu Asp  
275 280 285

Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala  
290 295 300

Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys  
305 310 315 320

Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His  
325 330 335

Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala Met  
340 345 350

Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala Gln  
355 360 365

Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu Phe  
370 375 380

<210> 22  
<211> 384  
<212> PRT  
<213> Homo sapiens



<400> 22

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ser Pro  
100 105 110

Ser Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys Tyr  
115 120 125

Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu Asp  
130 135 140

Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr Ile  
145 150 155 160

Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val Thr  
165 170 175

Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu Arg  
180 185 190

Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
195 200 205

Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala  
210 215 220

Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val  
225 230 235 240

Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met

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245								250				255			
Gly	Ser	Leu	Leu	Ala	Ala	Thr	Thr	Glu	Ala	Pro	Gly	Glu	Tyr	Phe	Phe
260				265				270							
Ser	Asp	Gly	Ile	Arg	Leu	Lys	Lys	Tyr	Arg	Gly	Met	Gly	Ser	Leu	Asp
275				280				285							
Ala	Met	Asp	Lys	His	Leu	Ser	Ser	Gln	Asn	Arg	Tyr	Phe	Ser	Glu	Ala
290				295				300							
Asp	Lys	Ile	Lys	Val	Ala	Gln	Gly	Val	Ser	Gly	Ala	Val	Gln	Asp	Lys
305				310				315				320			
Gly	Ser	Ile	His	Lys	Phe	Val	Pro	Tyr	Leu	Ile	Ala	Gly	Ile	Gln	His
325				330				335							
Ser	Cys	Gln	Asp	Ile	Gly	Ala	Lys	Ser	Leu	Thr	Gln	Val	Arg	Ala	Met
340				345				350							
Met	Tyr	Ser	Gly	Glu	Leu	Lys	Phe	Glu	Lys	Arg	Thr	Ser	Ser	Ala	Gln
355				360				365							
Val	Glu	Gly	Gly	Val	His	Ser	Leu	His	Ser	Tyr	Glu	Lys	Arg	Leu	Phe
370				375				380							

<210> 23

<212> PRT

<400> 23

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ser Ala  
100 105 110

His Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys Tyr  
115 120 125

Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu Asp  
130 135 140

Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr Ile  
145 150 155 160

Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val Thr  
165 170 175

Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu Arg  
180 185 190

Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
195 200 205

Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala  
210 215 220

Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val  
225 230 235 240

Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met  
245 250 255

Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe Phe  
260 265 270

Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu Asp  
275 280 285

Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala  
290 295 300

Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys  
305 310 315 320

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Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ile Val  
100 105 110

Asp Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys Tyr  
115 120 125

Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu Asp  
130 135 140

Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr Ile  
145 150 155 160

Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val Thr  
165 170 175

Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu Arg  
180 185 190

Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
195 200 205

Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala

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210 215 220  
Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val  
225 230 235 240  
Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met  
245 250 255  
Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe Phe  
260 265 270  
Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu Asp  
275 280 285  
Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala  
290 295 300  
Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys  
305 310 315 320  
Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His  
325 330 335  
Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala Met  
340 345 350  
Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala Gln  
355 360 365  
Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu Phe  
370 375 380

<210> 26  
<211> 384  
<212> PRT  
<213> Homo sapiens

<400> 26  
Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15  
Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30





Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala  
290 295 300

Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys  
305 310 315 320

Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His  
325 330 335

Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala Met  
340 345 350

Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala Gln  
355 360 365

Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu Phe  
370 375 380

<210> 27

<211> 384

<212> PRT

<213> Homo sapiens

<400> 27

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ser Pro  
100 105 110





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180										185					190				
Val	Gly	Met	Gly	Ser	Gly	Ser	Ile	Cys	Ile	Thr	Gln	Glu	Val	Leu	Ala				
195										200					205				
Cys	Gly	Arg	Pro	Gln	Ala	Thr	Ala	Val	Tyr	Lys	Val	Ser	Glu	Tyr	Ala				
210										215					220				
Arg	Arg	Phe	Gly	Val	Pro	Val	Ile	Ala	Asp	Gly	Gly	Ile	Gln	Asn	Val				
225										230					235				
Gly	His	Ile	Ala	Lys	Ala	Leu	Ala	Leu	Gly	Ala	Ser	Thr	Val	Met	Met				
										245					250				
															255				
Gly	Ser	Leu	Leu	Ala	Ala	Thr	Thr	Glu	Ala	Pro	Gly	Glu	Tyr	Phe	Phe				
260										265					270				
Ser	Asp	Gly	Ile	Arg	Leu	Lys	Lys	Tyr	Arg	Gly	Met	Gly	Ser	Leu	Asp				
275										280					285				
Ala	Met	Asp	Lys	His	Leu	Ser	Ser	Gln	Asn	Arg	Tyr	Phe	Ser	Glu	Ala				
290										295					300				
Asp	Lys	Ile	Lys	Val	Ala	Gln	Gly	Val	Ser	Gly	Ala	Val	Gln	Asp	Lys				
305										310					315				
Gly	Ser	Ile	His	Lys	Phe	Val	Pro	Tyr	Leu	Ile	Ala	Gly	Ile	Gln	His				
										325					330				
															335				
Ser	Cys	Gln	Asp	Ile	Gly	Ala	Lys	Ser	Leu	Thr	Gln	Val	Arg	Ala	Met				
340										345					350				
Met	Tyr	Ser	Gly	Glu	Leu	Lys	Phe	Glu	Lys	Arg	Thr	Ser	Ser	Ala	Gln				
355										360					365				
Val	Glu	Gly	Gly	Val	His	Ser	Leu	His	Ser	Tyr	Glu	Lys	Arg	Leu	Phe				
370										375					380				

<210> 29

<211> 384

<212> PRT

<213> Homo sapiens

<400> 29

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Gly Ser  
100 105 110

Gly Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys Tyr  
115 120 125

Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu Asp  
130 135 140

Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr Ile  
145 150 155 160

Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val Thr  
165 170 175

Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu Arg  
180 185 190

Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu Ala  
195 200 205

Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr Ala  
210 215 220

Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn Val  
225 230 235 240

Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met  
245 250 255

053391051004

Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe Phe  
 260 265 270

Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu Asp  
 275 280 285

Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu Ala  
 290 295 300

Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp Lys  
 305 310 315 320

Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His  
 325 330 335

Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala Met  
 340 345 350

Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala Gln  
 355 360 365

Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu Phe  
 370 375 380

<210> 30  
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 <212> PRT  
 <213> Homo sapiens

<400> 30  
 Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Gly Tyr Val Pro Glu Asp  
 1 5 10 15

Gly Leu Thr Ala Gln Gln Leu Phe Ala Ser Ala Asp Gly Leu Thr Tyr  
 20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Phe Ile Asp Phe Ile Ala Asp Glu  
 35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Arg Lys Ile Thr Leu Lys Thr Pro  
 50 55 60

Leu Ile Ser Ser Pro Met Asp Thr Val Thr Glu Ala Asp Met Ala Ile  
 65 70 75 80

09853918-051001

Ala Met Ala Leu Met Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Phe Asp Lys  
100 105 110

Thr Leu Leu Cys Gly Ala Ala Val Gly Thr Arg Glu Asp Asp Lys Tyr  
115 120 125

Arg Leu Asp Leu Leu Thr Gln Ala Gly Val Asp Val Ile Val Leu Asp  
130 135 140

Ser Ser Gln Gly Asn Ser Val Tyr Gln Ile Ala Met Val His Tyr Ile  
145 150 155 160

Lys Gln Lys Tyr Pro His Leu Gln Val Ile Gly Gly Asn Val Val Thr  
165 170 175

Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Gly Leu Arg  
180 185 190

Val Gly Met Gly Cys Gly Ser Ile Cys Ile Thr Gln Glu Val Met Ala  
195 200 205

Cys Gly Arg Pro Gln Gly Thr Ala Val Tyr Lys Val Ala Glu Tyr Ala  
210 215 220

Arg Arg Phe Gly Val Pro Ile Ile Ala Asp Gly Gly Ile Gln Thr Val  
225 230 235 240

Gly His Val Val Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met Met  
245 250 255

Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe Phe  
260 265 270

Ser Asp Gly Val Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu Asp  
275 280 285

Ala Met Glu Lys Ser Ser Ser Ser Gln Lys Arg Tyr Phe Ser Glu Gly  
290 295 300

Asp Lys Val Lys Ile Ala Gln Gly Val Ser Gly Ser Ile Gln Asp Lys  
305 310 315 320

Gly Ser Ile Gln Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln His  
325 330 335

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145 150 155 160

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
165 170 175

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
180 185 190

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
210 215 220

Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn  
225 230 235 240

Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met  
245 250 255

Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe  
260 265 270

Phe Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu  
275 280 285

Asp Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu  
290 295 300

Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp  
305 310 315 320

Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln  
325 330 335

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala  
340 345 350

Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala  
355 360 365

Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu  
370 375 380

Phe  
385

[illegible]

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
1 5 10 15

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Gln Pro  
100 105 110

Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu  
130 135 140

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
165 170 175

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
195 200 205

26



Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Asn Ile  
100 105 110

Ile Pro Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys  
115 120 125

Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu  
130 135 140

Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr  
145 150 155 160

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
165 170 175

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
180 185 190

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
210 215 220

Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn  
225 230 235 240

Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met  
245 250 255

Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe  
260 265 270

Phe Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu  
275 280 285

Asp Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu  
290 295 300

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Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp  
305 310 315 320

Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln  
325 330 335

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala  
340 345 350

Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala  
355 360 365

Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu  
370 375 380

Phe  
385

<210> 34  
<211> 385  
<212> PRT  
<213> Homo sapiens

<400> 34  
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Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
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Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Ser Pro  
100 105 110

Thr Gln Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys

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Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu				
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Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr				
145		150		155
				160
Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val				
		165		170
				175
Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu				
		180		185
				190
Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu				
		195		200
				205
Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr				
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Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn				
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				240
Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met				
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Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe				
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				270
Phe Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu				
		275		280
				285
Asp Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu				
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				300
Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp				
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				315
				320
Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln				
		325		330
				335
His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala				
		340		345
				350
Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala				
		355		360
				365
Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu				

370

375

380

Phe

385

&lt;210&gt; 35

&lt;211&gt; 385

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 35

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
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Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
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Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
 35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
 50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
 65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
 85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Thr Arg  
 100 105 110

Tyr Thr Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys  
 115 120 125

Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu  
 130 135 140

Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr  
 145 150 155 160

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
 165 170 175

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
 180 185 190

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
 195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
 210 215 220

Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn  
 225 230 235 240

Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met  
 245 250 255

Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe  
 260 265 270

Phe Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu  
 275 280 285

Asp Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu  
 290 295 300

Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp  
 305 310 315 320

Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln  
 325 330 335

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala  
 340 345 350

Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala  
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Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu  
 370 375 380

Phe  
 385

<210> 36

<211> 385

<212> PRT

<213> Homo sapiens

<400> 36

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
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85

90

95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Asn Gly  
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Gln Tyr Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys  
115 120 125

Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu  
130 135 140

Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr  
145 150 155 160

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
165 170 175

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
180 185 190

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
210 215 220

Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn  
225 230 235 240

Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met  
245 250 255

Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe  
260 265 270

Phe Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu  
275 280 285

Asp Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu  
290 295 300

Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp  
305 310 315 320

Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln  
325 330 335

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala

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340 345 350

Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala  
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Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu  
370 375 380

Phe  
385

<210> 38  
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<212> PRT  
<213> Homo sapiens

<400> 38

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
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Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Asn Ser  
100 105 110

Pro Leu Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys  
115 120 125

Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu  
130 135 140

Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr  
145 150 155 160

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
 165 170 175

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
 180 185 190

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
 195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
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Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn  
 225 230 235 240

Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met  
 245 250 255

Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe  
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Phe Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu  
 275 280 285

Asp Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu  
 290 295 300

Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp  
 305 310 315 320

Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln  
 325 330 335

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala  
 340 345 350

Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala  
 355 360 365

Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu  
 370 375 380

Phe  
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<210> 39  
 <211> 385

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<212> PRT

<213> Homo sapiens

<400> 39

Met Ala Asp Tyr Leu Ile Ser Gly Gly Thr Ser Tyr Val Pro Asp Asp  
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Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
20 25 30

Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Tyr Gly  
100 105 110

Thr Trp Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp Lys  
115 120 125

Tyr Arg Leu Asp Leu Leu Ala Gln Ala Gly Val Asp Val Val Val Leu  
130 135 140

Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys Tyr  
145 150 155 160

Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val Val  
165 170 175

Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala Leu  
180 185 190

Arg Val Gly Met Gly Ser Gly Ser Ile Cys Ile Thr Gln Glu Val Leu  
195 200 205

Ala Cys Gly Arg Pro Gln Ala Thr Ala Val Tyr Lys Val Ser Glu Tyr  
210 215 220

Ala Arg Arg Phe Gly Val Pro Val Ile Ala Asp Gly Gly Ile Gln Asn  
225 230 235 240

Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val Met  
 245 250 255

Met Gly Ser Leu Leu Ala Ala Thr Thr Glu Ala Pro Gly Glu Tyr Phe  
 260 265 270

Phe Ser Asp Gly Ile Arg Leu Lys Lys Tyr Arg Gly Met Gly Ser Leu  
 275 280 285

Asp Ala Met Asp Lys His Leu Ser Ser Gln Asn Arg Tyr Phe Ser Glu  
 290 295 300

Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln Asp  
 305 310 315 320

Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile Gln  
 325 330 335

His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg Ala  
 340 345 350

Met Met Tyr Ser Gly Glu Leu Lys Phe Glu Lys Arg Thr Ser Ser Ala  
 355 360 365

Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg Leu  
 370 375 380

Phe  
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<210> 40

<211> 1155

<212> DNA

<213> Homo sapiens

<400> 40

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 aaagacaaat accctaattc ccaagtcatt ggaggcaatg tggctactgc tgcccaggcc 540  
 aagaacctca ttgatgcagg tgtggatgcc ctgcgggtgg gcatgggaag tggctccatc 600

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<210> 41

<211> 1155

<212> DNA

<213> Homo sapiens

<400> 41

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tacatcgact tcaactgcaga ccaggtggac ctgacttctg ctctgaccaa gaaaatcact 180  
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<210> 42

<211> 1155

<212> DNA

<213> Homo sapiens

<400> 42

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tacatcgact tcaactgcaga ccaggtggac ctgacttctg ctctgaccaa gaaaatcact 180  
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<210> 43

<211> 1155

<212> DNA

<213> Homo sapiens

<400> 43

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<210> 44

<211> 1155

<212> DNA

<213> Homo sapiens

<400> 44

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gccaacgagg tgcggaaggt caagaagttt gacaaaaccc tgctctgtgg ggcagctgtg 360
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<210> 45

<211> 1158

<212> DNA

<213> Homo sapiens

<400> 45

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 35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Arg Lys Ile Thr Leu Lys Thr Pro  
 50 55 60

Leu Ile Ser Ser Pro Met Asp Thr Val Thr Glu Ala Asp Met Ala Ile  
 65 70 75 80

Ala Met Ala Leu Met Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
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Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Asn Phe Glu Gln  
 100 105 110

Gly Phe Ile Thr Asp Pro Val Val Leu Ser Pro Ser His Thr Val Gly  
 115 120 125

Asp Val Leu Glu Ala Lys Met Arg His Gly Phe Ser Gly Ile Pro Ile  
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Thr Glu Thr Gly Thr Met Gly Ser Lys Leu Val Gly Ile Val Thr Ser  
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Arg Asp Ile Asp Phe Leu Ala Glu Lys Asp His Thr Thr Leu Leu Ser  
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Glu Val Met Thr Pro Arg Ile Glu Leu Val Val Ala Pro Ala Gly Val

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FOOTNOTES: 8765860

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Gln	Lys	Gln	Leu	Leu	Cys	Gly	Ala	Ala	Val	Gly	Thr	Arg	Glu	Asp	Asp	
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Phe	Phe	Ser	Asp	Gly	Val	Arg	Leu	Lys	Lys	Tyr	Arg	Gly	Met	Gly	Ser	
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Gln His Gly Cys Gln Asp Ile Gly Ala Arg Ser Leu Ser Val Leu Arg  
465 470 475 480  
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Leu Tyr

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<212> PRT

<213> Homo sapiens

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Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
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Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Glu Gln  
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Gly Phe Ile Thr Asp Pro Val Val Leu Ser Pro Lys Asp Arg Val Arg  
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35 40 45  
Thr Ser Arg Asp Ile Asp Phe Leu Ala Glu Lys Asp His Thr Thr Leu  
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Gly Val Thr Leu Lys Glu Ala Asn Glu Ile Leu Gln Arg Ser Lys Lys  
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FOOTNOTES

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<301> Gu, Jing Jin

Spychala, Jozef

Mitchell, Beverly S.

<302> Regulation of the Human Inosine Monophosphate  
Dehydrogenase Type I Gene

<303> J. Biol. Chem.

<304> 272

<305> 7

<306> 4458-4466

<307> February 14, 1997

<400> 62

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Gly Leu Thr Ala Gln Gln Leu Phe Ala Ser Ala Asp Gly Leu Thr Tyr  
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35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Arg Lys Ile Thr Leu Lys Thr Pro  
50 55 60

Leu Ile Ser Ser Pro Met Asp Thr Val Thr Glu Ala Asp Met Ala Ile  
65 70 75 80

Ala Met Ala Leu Met Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Phe Glu Gln  
100 105 110

Gly Phe Ile Thr Asp Pro Val Val Leu Ser Pro Ser His Thr Val Gly  
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0953918-051001  
FOOTNOTES

Gly Leu Thr Ala Gln Gln Leu Phe Asn Cys Gly Asp Gly Leu Thr Tyr  
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Asn Asp Phe Leu Ile Leu Pro Gly Tyr Ile Asp Phe Thr Ala Asp Gln  
35 40 45

Val Asp Leu Thr Ser Ala Leu Thr Lys Lys Ile Thr Leu Lys Thr Pro  
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Leu Val Ser Ser Pro Met Asp Thr Val Thr Glu Ala Gly Met Ala Ile  
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Ala Met Ala Leu Thr Gly Gly Ile Gly Phe Ile His His Asn Cys Thr  
85 90 95

Pro Glu Phe Gln Ala Asn Glu Val Arg Lys Val Lys Lys Tyr Glu Gln  
100 105 110

Gly Phe Ile Thr Asp Pro Val Val Leu Ser Pro Lys Asp Arg Val Arg  
115 120 125

Asp Val Phe Glu Ala Lys Ala Arg His Gly Phe Cys Gly Ile Pro Ile  
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Thr Asp Thr Gly Arg Met Gly Ser Arg Leu Val Gly Ile Ile Ser Ser  
145 150 155 160

Arg Asp Ile Asp Phe Leu Lys Glu Glu Glu His Asp Cys Phe Leu Glu  
165 170 175

Glu Ile Met Thr Lys Arg Glu Asp Leu Val Val Ala Pro Arg Ser Ile  
180 185 190

Thr Leu Lys Glu Ala Asn Glu Ile Leu Gln Arg Ser Lys Lys Gly Lys  
195 200 205

Leu Pro Ile Val Asn Glu Asp Asp Glu Leu Val Ala Ile Ile Ala Arg  
210 215 220

Thr Asp Leu Lys Lys Asn Arg Asp Tyr Pro Leu Ala Ser Lys Asp Ala  
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Lys Lys Gln Leu Leu Cys Gly Ala Ala Ile Gly Thr His Glu Asp Asp  
245 250 255

Lys Tyr Arg Leu Asp Leu Leu Ala<sup>?</sup> Gln Ala Gly Val Asp Val Val Val  
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Leu Asp Ser Ser Gln Gly Asn Ser Ile Phe Gln Ile Asn Met Ile Lys  
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Tyr Ile Lys Asp Lys Tyr Pro Asn Leu Gln Val Ile Gly Gly Asn Val  
290 295 300

Val Thr Ala Ala Gln Ala Lys Asn Leu Ile Asp Ala Gly Val Asp Ala  
305 310 315 320

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325 330 335

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Asn Val Gly His Ile Ala Lys Ala Leu Ala Leu Gly Ala Ser Thr Val  
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Glu Ala Asp Lys Ile Lys Val Ala Gln Gly Val Ser Gly Ala Val Gln  
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Asp Lys Gly Ser Ile His Lys Phe Val Pro Tyr Leu Ile Ala Gly Ile  
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Gln His Ser Cys Gln Asp Ile Gly Ala Lys Ser Leu Thr Gln Val Arg  
465 470 475 480

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Ala Gln Val Glu Gly Gly Val His Ser Leu His Ser Tyr Glu Lys Arg  
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Leu Phe









0953918 051004

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